

IBM Corporation - Poughkeepsie

EPA Identification Number: NYD080480734

Other (Former) Names of Site

None

Site Facts

This site covers approximately 423 acres, two-thirds of which is occupied by a manufacturing complex with more than 50 buildings. The land use in the area is a mix of industrial, commercial and residential. IBM is located approximately six miles south of the City of Poughkeepsie between Route 9 and the Hudson River.

IBM at Poughkeepsie is involved in manufacturing, assembling and testing large business machines, primarily computers. The manufacturing process involves the cleaning of electric components with solvents; electroplating; photoetching; degreasing, and soldering of components. In addition, research chemical laboratories owned and operated by IBM are located on-site. As a result, IBM generates fifty separate waste streams that are Resource Conservation and Recovery Act (RCRA)-regulated, and an additional five PCB-waste streams regulated by New York State Department of Environmental Conservation (NYSDEC.)

Due to accidental releases, breaks in underground pipes and past waste management practices, there have been releases to both soils and groundwater. The most serious releases are volatile organic compounds (VOCs) to the groundwater in the manufacturing area of the plant. This release has resulted in the Site Gravel groundwater plume. The Site Gravel plume extends from beneath the manufacturing buildings to Spring Brook (also classified as stream H 107). This plume is located underneath a continuous gravel deposit in the southern part of the main plant at a depth of approximately 30-50 feet. This plume extends from approximately 400 feet east of Building 012, underneath buildings 002, 004, and 008 to intersect the surface at Spring Brook. Like the majority of the site, the Site Gravel is underlain by saturated bedrock with relatively low groundwater storage and transmitting capabilities. Since Spring Brook discharges into the Hudson River, it possess a potential off-site migration.

Currently, surface water monitoring along Spring Brook continues at seven wells and there has been a substantial reduction in the amount of trichloroethylene (TCE) from the Site Gravel plume entering H107 (40 ug/l in 1990 to 20 ug/l in 2002). Most releases to soils

were immediately cleaned up by the facility and, where questions remained, additional soil sampling and analysis were conducted under RCRA authority. The only release to soils currently requiring corrective measures is in an area of the former equipment crusher lower release pathway. This area (containing petroleum products and semi-volatile organics that are not very mobile) was covered with asphalt as an interim measure.

Site Responsibility and Legal Instrument

New York State Part 373 Hazardous Waste Management Permit regulates compliance of RCRA storage and management of hazardous waste in containers and storage tanks, and corrective action including investigative studies, groundwater monitoring, and interim/final corrective measures.

Potential Threats and Contaminants

There were three principal solvents used at the Poughkeepsie facility that have been detected in dissolved form in the groundwater in the shallow sand aquifer beneath the site. These solvents contain volatile organic compounds (VOCs). The most widespread concentration of these contaminants is in the Site Gravel plume, which appears to have originated largely from activities in the manufacturing area of the plant site. While there are multiple contaminant plumes (other than the Site Gravel plume) at the site, they are being remediated and controlled on-site.

Subsurface soil sampling has been conducted in many areas of the site. RCRA Facility Assessment/Site Visit sampling activities were performed for soils at nine solid waste management units (SWMUs). Soil sampling was conducted in March 2000 as part of the RCRA facility investigation (RFI) at the former drum storage area.

Based on the results of IBM's Risk Management Initiative's evaluation of the potential threat to human health, the concentration of chemicals in surface and subsurface soils and groundwater underlying the site do not pose unacceptable risks. The site also does not pose unacceptable risks for office workers potential exposure to indoor air. There is a potential for surface water impact to the Hudson River, which is a Class A river, meaning that it has been determined by NYSDEC that its best use is as a source of drinking water. The City of Poughkeepsie withdraws its water from the Hudson River approximately 5 miles from the IBM facility.

Cleanup Approach and Progress

The site remedial (corrective action) strategy consists of the following two tasks:

- To recover as much dense non-aqueous phase liquids (DNAPL) as feasibly possible, IBM will evaluate the technical impracticability associated with remediating dense non-aqueous phase liquids (DNAPL). Of the 11 SWMUs and one area of concern (AOC) listed for this site, three SWMUs are associated with

the presence of DNAPL: the former antenna drum storage area, the former B025 area, and the former industrial waste drainage system. The release of DNAPL has occurred into a heterogeneous subsurface environment including multi-layered soils and fractured bedrock. This makes the migration of contaminants virtually impossible to predict. Concentrations indicative of DNAPL penetration into rock extend to depths of 100 to 200 feet below ground in the former antenna drum storage area and the former B025 area. Therefore, not all DNAPL will be identified and removed. DNAPL that is recovered will be sent off-site for disposal.

- To continue the operation of the existing groundwater monitoring and recovery system, which has been enhanced with the construction of a groundwater collection, conveyance and treatment system.

In 1992, a RCRA Facility Assessment determined that several units had confirmed releases to soil, groundwater and/or surface water. As a result, IBM was required to conduct an RCRA Facility Investigation (RFI) at thirteen Solid Waste Management Units (SWMUs) to determine the nature and extent of their contamination. Soil sampling was conducted at eight SWMUs to confirm whether releases had occurred.

Several interim corrective measures (ICMs) have been implemented to mitigate the impacts of releases since the late 1970s, among them the tank farm pump and treat system, and, more recently, the former equipment crusher release pathway asphalt cap, and Building 003 passive groundwater collection system. Also, soil, wastes and containers were removed from the location of a previous on-site waste disposal area that was located west of Building 208. Historically, tanks that IBM utilized to store chemicals located in the lower plant area adjacent to the Hudson River, leaked. In response, soil and water containing these chemicals were removed down to the bedrock. An underground slurry wall was installed to prevent groundwater movement from the immediate area of the spill.

From 1981 to 1986 an extraction system operated near a former burn pit to depress the water levels and to remove light non-aqueous phase liquids (LNAPL) found at several groundwater monitoring wells in this area. A new extraction system was recently installed to remove residual LNAPL and has been operating intermittently since late 1997.

LNAPL containing xylene in the soil and water was removed from an area where a former tank farm was located, which was west of Building 004.

Old industrial sewers suspected of leaking were upgraded to a new double-walled system with leak detection. Sediment in some pipes and soil around these leaking pipes and manholes were considered to be potential continuing sources. Sediment was flushed from the pipes and in several instances, piping and manholes were removed, together with surrounding soil.

Long term groundwater extraction has proceeded at two wells at the Site Gravel area to control the migration of VOCs to the on-site stream (The New York State discharge

standard for TCE is 21 parts per billion and the latest IBM monitoring results for this stream show 20 parts per billion. While this is within State guidelines, there are sporadic fluctuations and exceedences.). That stream is a tributary to the Hudson River. These two extraction wells have removed more than 690 pounds of volatile organic compounds to date.

Another interim corrective action, the storm sewer re-routing project, was implemented to segregate storm water from groundwater, which had previously collected in the storm sewer system through infiltration. In the area where this storm sewer re-routing was implemented, groundwater containing volatile organic compounds was infiltrating into the old storm sewer system. The re-routing was performed to prevent continued infiltration.

As part of the ICM program, the former equipment crusher lower release pathway that is contaminated with semi-volatiles was paved with asphalt to prevent direct human contact.

In 2001, construction of a groundwater interception system was completed in the area adjoining the Hudson River involving the former burn pit area, antenna drum storage, former building 025, waste oil leach field, building 077 and the overpass area. This project is designed to capture five separate contaminated groundwater plumes before any of them enter the Hudson River.

EPA and NYSDEC recently reviewed the results of an evaluation by IBM of this groundwater containment system. This evaluation demonstrated that the migration of contaminated groundwater was under control. In addition, a treatment facility was constructed in building 030 to handle the captured water.

Permit Status

The NYS Part 373 Permit was issued on October 27, 1997 and will expire on October 27, 2007. On September 28, 1984, IBM received a final Resource Conservation and Recovery Act (RCRA) Part B permit from EPA for the Tank Farm and a Hazardous Waste Storage Building.

In 1988, IBM submitted a closure plan for the Tank Farm facility. The closure plan was subsequently approved by EPA and NYSDEC. No final approval for the closure certification of the units has been granted since the closure is being addressed under the RCRA corrective action program.

Site Repository

Copies of supporting technical documents and correspondence cited in this fact sheet are available for public review at:

New York State Department of Environmental Conservation
Bureau of Radiation and Hazardous Waste Management

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